

REMARKS

By the present amendment, claims 1 to 4 and 6 to 15 are under consideration in the application.

Restriction Requirement

Dependent claims 8 and 9 have been withdrawn from consideration due to the restriction requirement.

Dependent claim 8 depends and incorporates by reference all the limitations of independent claim 1. Dependent claim 9 depends from dependent claim 8.

If independent claim 1 is found allowable, it is respectfully requested that dependent claims 8 and 9 be rejoined to the application and found allowable.

Support For Claim Amendments

Claim 1

In amended claim 1, support for the lower limit of Si being --0.100%-- may be found in the specification at Table 1, page 16, Steel codes 14, 20, 21 and 25.

Support for --a tensile strength of 980 MPa or more-- may be found in the specification at page 3, lines 35 to 37.

Support for --TS x E1 of 16,000 or more-- may be found in the specification at page 13, lines 28 to 29.

§112, ¶1

Claim 1 was rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

By the present amendment, claim 1 has been amended to delete the limitation “free from containing Co”.

In view of the present amendment, it is respectfully requested that the rejection of claim 1 under 35 U.S.C. §112, first paragraph, be withdrawn.

§103

Claims 1 to 4, 6, 7 and 10 to 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Japan No. 2003-105513.

This rejection, as applied to the amended claims, is respectfully traversed.

Patentability

Japan No. 2003-105513 (“the ‘513 patent”)

The technology disclosed in ‘513 patent relates to a high strength galvanized steel sheet excellent appearance and workability, where the steel sheet contains; C: 0.0001 - 0.3%, Si: 0.001 - < 0.1%, Mn: 0.01 - 3%, Al: 0.001 - 4%, Mo: 0.001 - 1%, P: 0.0001 - 0.3%, S: 0.0001 - 0.1%, and the balance of Fe and unavoidable impurities, and has a plated layer containing Mn: 0.001 - 3%, Al: 0.001 - 4%, Mo: 0.0001 - 1%, and Fe: 5 - 20% and the balance of Zn and unavoidable impurities. The contents of X (Mn%: steel sheet), Y (Si%: steel sheet) and Z (Si%: plated layer) satisfy; $0.6 - (X/18 + Y + Z) \geq 0$. The microstructure is composed of complex structure, in terms of volume %, ferrite or ferrite + bainite: 50 - 90%, the remainder martensite and/or retained austenite: 3 - 50%.

Regarding the steel composition, the ‘513 patent contains a small amount of Si, such as 0.001 - < 0.1%, preferably less than 0.08% (Table 1, Example J) to secure productivity, strength and reduced scale damages, and further discloses that the Si content should not exceed more than 0.01% because of deterioration of scale damages and surface appearance and yield ratio.

On the other hand, the Si content in the present invention is 0.100 - 0.3% to obtain the required ductility and chemical converted coating ability, which is a very different Si content and purpose for Si. In addition, the present invention does not contain Co.

Further, the present invention contains ferrite and martensite without containing retained austenite, and has a tensile strength of more than 980 MPa and a value of

TS x E1 of more than 16,000, which is different microstructure than the '513 patent composed of a complex structure, ferrite or ferrite + bainite and the remainder martensite and/or retained austenite.

There are no Examples in Table 1 of the '513 patent in which the microstructure contains only ferrite + martensite without containing retained austenite. This means that the steel sheet of the present invention is a different steel sheet than the steel sheet disclosed or suggested in the '513 patent.

Furthermore, the '513 patent does not disclose or suggest the feature of the present invention with a tensile strength of more than 980 MPa and a value of TS x E1 of more than 16,000, as shown in Figs. 1 and 2 attached hereto, showing the relationship between Elongation (E1) and Tensile strength (TS), and between TS x E1 and TS. In addition to the equation $(0.0012 \times [\text{target strength TS}] - 0.29 - [\text{Si}]) / 2.45 < \text{Al} < 1.5 - 3 \times [\text{Si}]$ for obtaining the required ferrite volume ratio (specification, page 9, lines 18 to 24) is not disclosed or suggested in the '513 patent.

Therefore, the present invention is very different from the technology disclosed or suggested in the '513 patent.

It is therefore submitted that amended claim 1, and all claims dependent thereon, are patentable over Japan No. 2003-105513.

CONCLUSION

It is submitted that in view of the present amendment and foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application, as amended, be allowed and passed to issue.

Respectfully submitted,

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Dated: May 21, 2009

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